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On some ancient Shell-mounds and Graves, in Caithness. By SAMUEL LAING, Esq., F.G.S., F.A.S.L.

A VISIT to Caithness, during the past autumn, gave me an opportunity of examining some of the ancient shell-mounds and remains of aboriginal dwellings, which are numerous in that county, and in the Orkneys; and of obtaining a series of very perfect skulls and other parts of human skeletons, from a burying place apparently of the same period.

The subject is one of considerable interest, owing to the discoveries which have been made in the "Kjökkenmöddings" of Denmark. It has been clearly established that these Danish refuse heaps belong to a period of very remote antiquity. Their position at the bottom of deep peat-mosses; on the lowest, or fir, platform of the three series of forest vegetation which have succeeded one another in Denmark; the presence of oyster and other marine shells, which have ceased to exist in the brackish waters of the Baltic; the absence of domestic animals, metals, and of all implements except rude forms of stone and bone; all lead to the conclusion that these refuse heaps belong to the earliest of the three periods of stone, bronze, and iron, which are so well distinguished in Scandinavia.

It may further be said, with confidence, that they belong to an early stage of the stone period, and are considerably more ancient than the Lake dwellings of Switzerland of the same period.

In fact, as far as present information extends, they mark the transition between geological and historical man, showing us the earliest known instance of a race living in an existing country, under variations of climate and physical geography not great enough to take them out of the recent, or existing epoch; and connected in a continued sequence through the later stone, the bronze, and the iron ages, with the period of regular history.

The researches of Danish antiquaries have thrown a flood of light on this remote period, and the discoveries of the Borreby and other skulls have invested it with fresh interest, as showing the type which probably prevailed among this aboriginal population.

Under these circumstances it becomes important to ascertain whether Britain, and especially the North of Scotland, whose antiquities present so many analogies to those of Scandinavia, contain remains of a similar nature. The existence of shell-mounds on the shores of the Murray Firth has been recently ascertained, and Mr. Lubbock, in the *Natural History Review* of July 1863, gives a very interesting account of some which he visited in the neighbourhood of Elgin. The result, however, of the few researches which have been made into the Scottish shell-mounds has been to leave the subject in great uncertainty. Mr. Lubbock succeeded only in finding shells, with fragments of bones, of oxen, sheep, and pigs, and three small implements of bone. He remarks that the absence of pottery, and of implements either of flint, stone, or metal, is most "puzzling"; and he mentions that a bronze pin was shown him, said to have come

from one of the mounds, the fashion of which showed it probably to be of quite recent date, or about A.D. 800 or 900.

Since the date of Mr. Lubbock's paper, Mr. Roberts has described in the *Anthropological Review* of February 1864, the result of his exploration of some shell-mounds, with associated cairns at Bennet Hill, near Burghead. Two of the cairns covered rude stone kists, in one of which was found a complete skeleton, with a cranium of a decidedly brachycephalic type, of which a minute description is given by Mr. Busk. In the shell-mound nearest to the kist, were found fragments of very rude pottery, and some flint arrow-heads.

Various incidental notices of refuse heaps of shells and bones are scattered throughout the numerous accounts of ancient tumuli, burghs, and Picts' houses; but these are generally unsatisfactory and lead to contradictory results.

Hugh Miller mentions bronze articles as being found along with rude implements of bone and flint, in shell-mounds, near Cromarty.

Mr. Petrie gives several instances of bronze, and even iron, having been found in apparent association with stone and bone, in Orkney, although he adds his own opinion, that the former are probably of later date.

Mr. Rhind found bronze articles, along with shells, bones, and rude implements of stone and bones, in the chambered cairns of Kettleburn, in Caithness.

The result, therefore, hitherto has been to leave the age of these refuse heaps altogether uncertain. They may be of any age, from that of the Danish "Kjökkenmöddings", to the historical or even the Christian period.

The same uncertainty attaches to a considerable extent to the type of the human race associated with these remains.

In Scandinavia it seems to be established that the earliest or stone race had small round heads, of a type resembling that of the modern Laplanders or Esquimaux; and that they were succeeded by a long and narrow headed race, who may be considered generally to coincide with the bronze period; the existing or historical race coming in with that of iron. In Great Britain and Ireland, on the other hand, the general opinion seems to be that a long headed race was the earliest, and that it was succeeded by a round headed one, which in its turn gave place to the historical race who were found in possession of the islands at the Roman invasion.

It cannot be said, however, as regards Britain, that these positions are established with anything like certainty. It is an open question, whether any definite separation of a stone, bronze, and iron period can be made out; and even if it were, there are many instances, like that which has been quoted of the Burghead kist, where skulls of the short headed type have been found in graves apparently of the oldest period.

These questions can only be solved by an accumulation of facts, recorded with scrupulous accuracy. The refuse heaps afford by far the best chance of ascertaining the habits and conditions of life of the pre-historic populations; but they require even more than the ancient

tombs and dwellings, the most accurate and systematic investigation, not only to give us truth, but to escape giving us error.

The shell mound, or midden, is of itself a formation of no particular period. I have seen many a "Kjökkenmödding" accumulating at the back door of an Orkney cottage, where limpets were largely used for bait. It must be remembered also that the same mound has frequently been used over and over again for a succession of habitations.

There are many reasons why this must be the case, such as convenience of situation, access to the shore, drainage, supply of stones for building, and a richer soil and greener pasture; all of which are afforded to the new settler by the old ruined mound. In point of fact, very many cottages in Orkney and Caithness now stand on, or immediately adjoining to, old mounds; and a slight excavation, such as a child might make in sport, might readily bring together the contents of the recent and ancient middens, and place a halfpenny of Queen Victoria in juxtaposition with a stone celt or flint arrow. In my own limited explorations I have seen three or four instances which have taught me the necessity of extreme caution, and of attaching no weight whatever to the discovery of any article in connection with an old mound or building, which has not been found in some original undisturbed stratum, and its situation accurately noted at the time by a competent observer.

In one case, a modern metal button was thrown up by the spade amidst the débris of an ancient shell-midden. On investigation it was clearly proved to have been torn off the waistcoat of one of the workmen on the preceding day, and amidst a storm of wind and rain blown into and apparently incorporated with the refuse heap. Again, I heard of coins of William and Anne being found in one of the stone kists containing skeletons, or, according to another account, in one of the ancient mounds. On inquiry, it turned out that these coins were really found within a foot of the surface, when a field road had been cut through the outer corner of another low mound on the sea-shore, in a spot which must always have been inhabited or near some habitation.

And, finally, the coin of Elizabeth, which I now produce, was found in digging the foundation of a barn in Orkney, at about a foot below the surface, in a spot closely adjoining to a mound or Picts' house, some of the débris of which are at a level several feet higher than the site of the coin; so that if this estate were thrown into a large sheep farm, and the buildings removed, a century hence this coin might have been found in a green mound of shapeless ruins, at a level distinctly below stone hammers and teeth of "*Bos longifrons*."

I dwell at some length on these instances, because I am convinced that nothing but error can result from attaching any weight to the evidence of simple juxtaposition in the same mound, refuse heap, or building, without accurate observation of the whole circumstances of each discovery; and, above all, that no reliance whatever is to be placed on anything which is found within two or three feet of the surface, in soil which is recent, or which may possibly have been disturbed.

In all the discoveries which I now proceed to describe, I have

been most careful to make a note and rough section on the spot, and I can answer personally for the accuracy of every detail which is given in this paper.

With this preface I proceed to record the facts which I have to lay before the Society.

The vicinity of Keiss Castle, on the shore of Sinclair's Bay, eight miles north of Wick, where I resided for some weeks during the past autumn, is peculiarly rich in remains of antiquity.

Within a range of about two miles, beginning from the south, there are :—

1. Two large mounds, popularly known as the "Birkle Hills", in the sandy links near the Westerburn.

2. A long "Burial mound", containing numerous stone cists and skeletons, about a mile and a half north of the former, where the links end, and the first houses of Keiss begin.

3. A large green mound, a little to the north of the harbour of Keiss, which I shall designate as the "Harbour mound", and immediately adjoining to it a smaller mound and some traces of ancient dwellings. These are about half a mile north of the Burial mound.

4. About a quarter of a mile inland from the "Harbour mound", close to the present churchyard, are two low, irregular, green mounds, one of which has been partly cut through by the road from Wick to Huna, disclosing a mass of shells. This I call the "Churchyard mound."

5. About three miles inland from Keiss, in the midst of an expanse of heather, is a small green spot with some grey stones scattered over it, which contains the remains of ancient dwellings. This I call the "Moorland mound."

There are many other mounds in this part of the country, but I confine myself to those which I have examined personally. My time being limited, and subject to many interruptions, I could not complete the exploration of all of those I have mentioned, so as to disclose thoroughly their structure and contents, and was obliged to confine myself to those which promised the most immediate results for the special object I had in view, which was not so much the elucidation of architectural structure, as the collection of facts bearing on the composition of the refuse heaps, and on the type and age of the race whose graves were unexpectedly disclosed while pursuing the former branch of research.

I begin with the "Burial mound", as the most important and interesting. At the point where the sandy links end, and the sand of the sea shore changes into rock, a long, low, irregular mound of sand, overgrown with green turf, extends for about three hundred yards parallel to the beach on its natural terrace, which is here composed of a raised beach of sand and shingle. The mound has, probably, continued for 400 or 500 yards further north over the space now occupied by cottages, gardens, and farm-yards, as kists and skeletons are said to have been found up to the point where the cliff of boulder clay rises near the harbour. In this case the mound has been nearly half a mile long.

Its shape is so far obliterated that it is not easy to assign its precise breadth and height, and, unless to an antiquarian eye—sharpened by the knowledge that kists had been found, the existence of a mound at all would escape notice. To this circumstance it is probably owing that the graves had in no instance been previously opened, and the skeletons lay quite undisturbed.

The maximum breadth, however, may be taken roughly at eighty to ninety yards, and the height at ten feet above the natural soil or raised beach, which is itself about ten feet above the highest level of present high water mark.

The appearance of the mound, with the position of the graves explored, are shown by the accompanying sketch and sections.

The fact of this mound containing graves was disclosed by the road, shown in the section, being cut through it about twenty years ago. Hearing of this, I made several cross sections, in search of kists, with the following results.

Kists were found in every instance with wonderful regularity at about fifteen feet apart, in the central line of the mound. They were all undisturbed and contained human skeletons, and were all of the same structure, consisting of walls of unhewn flag stones from the beach, with no floor, but covered with large flat stones. The accompanying sketch gives the best idea of these kists, which were precisely of the same pattern, except that the chief's kist was larger, and built with stones somewhat more massive, and carefully fitted. The kists generally lay north and south, or at a slight angle to the direction of the mound and sea-shore, which was north-east and south-west. The skeletons were all laid at full length, except one, in which the head and legs seem to have been partially crumpled up, but this may have arisen from subsequent displacement by pressure.

The skeletons lay in no particular direction, the heads being generally towards the south, but in some cases to the north. Nor were they laid in any particular position, most of them reclining on the right side, but one laying flat on its back, and others with their faces almost downwards. The bones were in various states of decomposition, according to local accidents giving more or less access to air and water. In two kists the skeletons had almost disappeared, or crumbled to pieces on being exposed to the air. In five instances they are nearly or quite perfect, but had lost much of their animal matter, and adhered strongly to the tongue.

The skeletons lay in a layer of clean sand, about six inches thick, laid on the natural soil, and above each kist was a small cairn or pile of stones from the beach, from one to three feet high, and above this, one to three feet of sand, covered with a fine grassy turf. In one instance the kists lay in a double tier, one over the other.

The kists were generally filled with clean sea-sand, in which the body seemed to have been packed, though others contained nothing but the skeleton, or stones and sand which had fallen in through the roof.

There were no traces whatever of dwellings, of the action of fire, or of refuse heaps, in connection with the graves or burial mound;

a few of the kists only containing some shells, which may have been placed there as food for the deceased.

We may consider this burial mound, therefore, as a pure, unadulterated place of interment, which has never been disturbed, or used for any other purpose, and in which we have a series of probably sixty or seventy graves, taking the mound at 300 yards in length, or of 200, if it extended, as there is every reason to believe, for half a mile. The number and regularity of the kists preclude the idea of a hurried interment of bodies slain in battle; and some of the skeletons being of women, confirms the supposition that it was the regular burying place of a surrounding population.

I proceed to describe the articles found in the kists with the human skeletons, which is the point of real importance in determining their age.

In no instance was there a vestige of hair, integument, clothing, wooden coffin, urn, pottery, or, in fact, of anything whatever having been buried with the body, with the following exceptions.

In one kist the lower jaw of a dog was found. In two others were found stone weapons and implements, under the following circumstances:—Disappointed at finding nothing to identify the age in any of the first nine or ten kists opened, I considered that if any chief of superior rank were buried, it would probably be in the centre of the mound, and his grave would be the most likely place to discover relics. Accordingly, I had two trenches cut across the mound as nearly as possible at its centre, observing the rule which had hitherto been found to prevail, of an interval of fifteen feet between each grave. The result is shown in the section. The northernmost trench disclosed the kist No. 7, in which lay the skeleton of a man much taller than any of the others previously opened, being upwards of six feet in height, while those previously found did not exceed five feet to five feet four inches; and by his side, in the clean sea-sand which filled the kist, was the heart-shaped stone hammer or celt now produced, and marked “Kist No. 7”, with the accompanying limpet and other shells. It is of sand-stone, 5 inches long, $3\frac{3}{4}$ inches broad, and about 1 inch thick, and bears evident marks of having been used at the smaller end.

The other trench hit upon the corner of a circular wall which we at first took for the wall of a small burg or round tower, but on examination it proved to be an inclosing wall, 18 feet in inner diameter, and 9 inches to 1 foot thick, of a cairn of stones, which as we approached the centre became large, and were disposed with some care. On removing the cairn, was disclosed a stone kist of large dimensions, built and roofed over with massive flat stones, shown in the accompanying sketch and section.

The dimensions of the kist were:—length, 6 feet 7 inches; width at head, 1 foot 10 inches; width at foot, 1 foot 9 inches; depth, 1 foot 10 inches.

It contained the skeleton of a man who must have been about 6 feet in height, and of very massive proportions. He lay with his head to the south, in the usual attitude, on his right side; and in

the clean sand by his side, about where the left hand reached to, were a series of 12 stone weapons, now produced, and which may be safely said to be among the very rudest ever used by man.

They comprise,—one which may have been a battle-axe, three which may have been spear-heads, one arrow-head, six knives or cutting instruments, and one which seems to be the fragment of a broken celt or hammer.

In addition to these, there were laid under the head, or close to it, the oval sandstone disc and knife, and the smooth oval stone, apparently intended for a hammer, which are also produced. This makes in all fifteen stone weapons or implements found in the chief's kist.

There were further found among the stones in the cairn covering the chief's kist, five stone articles, viz.,—

1. A sandstone block, 13 inches in diameter, with two circular holes about two inches deep, on opposite sides, but not pierced through.

2. A thin plate, 18 inches by 14, rudely chipped to an oval or circular form.

3. A similar round plate, about 7 inches by 6.

4. A broken wrought circular stone, with a circular hole in the centre.

5. A small granite stone from the beach, apparently used as a hammer, $2\frac{1}{2}$ inches by $1\frac{3}{4}$.

Several other stones were found, of very regular oval form, which may have been celts or hammers, but natural stones of this description are so common on the beach that I made a rule of rejecting everything which did not bear unequivocal marks of having been wrought or used by man.

I proceed now to the other mounds, and begin with the Churchyard mound, as affording the simplest state of facts, and the closest analogy to the Danish Kjökkenmøddings.

In this case, as shown in the accompanying section B, a great mass of shells, at least five feet deep, and covering an area of several hundred square yards, rests on the natural soil, and is itself covered by the foundation of a massive building, which in its turn has all but disappeared, and been converted into a low and shapeless green mound, affording excellent pasture.

I am inclined to think that the old building may have been a burg, or circular tower, like that presently to be described, on the shore; but even the ruins have almost disappeared, having doubtless been used as a quarry for building adjoining houses and stone walls; and nothing remains but the massive pavement or floor of large flat stones, three to four inches thick, and just enough of structure in one place to show that the principle of overlapping stones was used as a substitute for the arch.

However, the important fact remains, that this foundation is superimposed on the shell-mound as clearly as any secondary is on a primary formation in geology; and that the refuse heap cannot have accumulated about the building, but must have existed before it.

This heap is composed mainly of periwinkle shells, differing in this respect from the others nearer the shore, in which limpets pre-

dominate. There are, however, mixed with it several limpet shells, and a few of the other species found on the shore, and a considerable number of animal bones and teeth, almost all of which are chipped up into small fragments.

The relics found in this heap, principally towards the middle and lower strata, consist of chipped flints, and very rude stone and bone implements and pottery. There are specially two bone arrow-heads, and about eighteen skewers or pins of fragments of bone and horn, worked roughly to a point, which may be appealed to confidently as a proof of the absence of metals, and extreme rudeness of the race by which they were used. They are, in fact, the *ne plus ultra* of rudeness in bone, as the weapons found in the kist are of a like rudeness in implements of stone.

In the centre of the mass, at the point marked * in the section, was found a human tooth, with a small portion of the jaw, which is important in connection with a similar discovery in another mound. Wood ashes and charcoal were common in this mound, and the shells and bones appeared to have been generally subjected to the action of fire.

The animal bones were less abundant and more generally chipped into small pieces than those found in the other mounds. It seemed as if four-fifths of the food of the people by whom this most ancient midden had been accumulated, had consisted of periwinkles, and as if animal bones had been a delicacy, from which every particle of marrow was extracted by breaking them up.

The next mound I shall describe is the Harbour mound, which afforded the greatest number of relics, and showed most clearly the architectural structure of these ancient dwellings. At first sight it consisted of a very irregular grassy mound, with some loose stones lying about, and showing faint traces of a low outer circular wall or rampart. On excavating, a great mass of cyclopean building and shell-midden was disclosed, with floors or pavements at different levels, which will be best explained by the accompanying sketches, ground plan, and sections.

It is clear that this building had been of the class of burg or circular tower, common in Caithness and Orkney. I doubt, however, whether it ever had the bee-hive shape, as no sign of convergence appears in any of the circular walls, one of which remained standing in parts to the height of twelve feet. It seems rather as if the passages only, between the circular walls, had been covered in, and used as dwellings in bad weather or winter, the inner circle, which is twenty-four feet in diameter, remaining open.

The whole upper part of the building, however, has fallen in, and a great part of it, including nearly all the circular walls on the northern side, removed for building purposes. No vestige of timber was found, though there was abundance of wood charcoal in the lower strata, apparently of a small scrubby underwood of birch and hazel.

The remarkable fact in this mound is, that it indicated successive occupation, and adaptation of the older parts of the building by newer inhabitants. The primitive part of the structure seemed to

be the second or middle circular wall, which was by far the most massively built, and went down to a lower pavement of large flags, resting on a layer of flat beach stones, laid on the natural rock. The space for five feet above this level was filled up with a midden, or accumulation of shells, bones, ashes, &c. Then came a second pavement of large flag-stones, on a level with which are the foundations of the two other—or inner and outer circular walls. Above this was another midden, $1\frac{1}{2}$ feet deep, and then an upper pavement, forming the floor of the inner circle. This, again, was covered by a midden of its own, mixed with a mass of stones and rubbish which had fallen in and choked up the building. There were thus three distinct middens, separated by superimposed pavements, which without expressing any theory, and simply as a convenient mode of representing the facts, I may call the primary, secondary, and tertiary middens.

Outside the walls these middens were of course less distinct, there being no pavements to separate them, but it was evident that as the refuse had accumulated at each stage on the floors inside, it had accumulated still more rapidly on the outside at certain spots where it had been commonly thrown out; and thus the same distinction of a primary, secondary, and tertiary midden must approximately apply nearly to the same levels of the outside strata.

In addition to the evidence from superposition of pavements, there is clear proof of successive occupation, from other sources. The doorways of the inner and second circular walls do not correspond. The former has two entrances, as shown on the ground plan, nearly opposite to each other, or east and west. The other has one very massive doorway only, to the south-west. On coming up to this doorway in exploring the passage, between the two circular walls, it presented the appearance of a fire-place and chimney, rudely constructed with loose rubbly stones, overlapping one another, as shown in the accompanying sketch.

On removing these, the solid massive doorway of the second wall appeared, which had obviously been converted from the entrance of a strong fort into a chimney.

Just outside this doorway was a massive stone staircase of eleven steps, leading down to the level of the second pavement.

I am particular in stating these facts, as they have an important bearing on this other fact, that the class of relics found in the upper and lower middens were essentially distinct. Among the various relics now exhibited from this and the other mounds, there is no exception to the rule, that the rude forms of bone and pottery are exclusively confined to the two lower middens, while the few instances of metallic objects, finer pottery, and well wrought bone implements are as exclusively confined to the upper one. The same rule applies generally to the stone implements, but these are more intermixed, as might be expected of heavy objects where so much of the original building has fallen in, or been quarried and disturbed.

The skulls, and animal teeth and bones, were of the same character throughout, and very abundant, so that many cart loads might be

taken, in addition to what had been already taken—as I was told—to manure the land. The larger bones had generally been broken to extract the marrow; but not into such small fragments as in the “Churchyard mound”, though the same rule seemed to apply here to some extent, that the bones were broken into smaller pieces in the lower strata. The large deer’s horns especially seemed to be most abundant towards the top. The shells are principally limpet, a mass of which, cemented by oxide of iron, is produced as a specimen.

Wood charcoal and ashes were common in the lower middens, while higher up the ashes seemed to be of peat.

The relics found in this mound consisted—1. Of the rude stone implements, chipped flints, rude implements of bone and horn, and coarse, hand-made pottery, which correspond entirely in character with these found in the “Churchyard” middens and burial mound. 2. Of the bronze implement and metal object, apparently the two blades of a pair of scissors rusted together, which were found in the upper midden, at or near the spot marked A in the section, with some thinner and finer pottery. This seems to have been a combination of bronze and iron to form a small pair of shears, such as might be used for clipping sheep. It is probably comparatively recent, and a relic of the last occupants of the dwellings by whom the chimney and fireplace were constructed.

In the secondary midden, B, at the spot marked *, in the midst of a mass of limpet shells, and broken jaws, teeth, and bones of animals, I found the fragment of the human lower jaw now produced. It is that of a child about six years of age, the permanent teeth being formed, but not having yet displaced the milk teeth. No trace of any other human bone was found with it, and coupling it with the fact of another isolated fragment of human jaw having been found in another midden, both under circumstances precisely similar to those of the deer, pigs, and oxen by which they were surrounded, it raises a strong presumption that these aboriginal savages were occasionally cannibals.

The fact is the more remarkable, as the extensive researches in the Danish Kjökkenmöddings have failed to discover any trace of human bones, whence Lyell infers, in his *Antiquity of Man*, that the primeval Danes were not cannibals.

The next mounds to be described are the Birkle Hills.

These are two mounds situated on the Wester links, large enough to be taken—as their name implies—for small natural hills, as shown by the accompanying sketch D. They stand amidst the hillocks of blown sand, about 200 yards from the sea-shore, on the raised beach of sand and flat shingle stones, which can here be traced distinctly for some distance. The larger mound is roughly conical, about 40 feet high, and 120 yards in circumference at the base. The lower mound commences about 100 yards north-east of the other, and is a long, irregular mound, which may be taken roughly at 30 feet high, 100 yards long, and 30 yards wide. The surface of both mounds is of sand, covered with small stones from the adjacent raised beach, and, in the case of the smaller mound especially, with a vast number of

limpet and periwinkle shells, and animal teeth and bones. Traces of small cairns of massive stones remain on the summits of both mounds and round their base, but these seem all to have been opened, and disclosed no structure or relics. At the base of the smaller mound, on the side next the sea, was a stone kist, exactly like those of the Burial mound, the head stone of which just projected above the sand. It had been opened—I believe a few years ago, by a medical man now in India—but the skeleton, with the exception of the skull, which was wanting, had been replaced in the kist, and the lower jaw is now produced. The remains of three or four other kists of similar construction lay scattered about the base of the small mound; and on the west side of the large mound one was found containing some small fragments of human bones, with some skulls and portions of animal bones, but these latter may have fallen into the kist from the surrounding soil.

The most important point about these kists is, that they serve to connect the mounds on the links with the Burial mound, the age of which is defined by the implements found in the chief's kist. The kists are of precisely the same size and construction, except that some of them at the Birkle Hills seem to have had two memorial pillars or small standing stones, about three feet in height, one on each side of the head stone of the kist.

As regards the structure of these mounds, I had no time to investigate it thoroughly. The larger mound shows traces of Cyclopean architecture, and I am disposed to think it is of the same class as the other large conical mounds of Caithness, viz., consisting of concentric circular walls with cells or chambers in the interspaces between the walls. I am somewhat doubtful, however, of its having been a fort or dwelling, from the circumstance that, with the exception of a few shells and bones scattered sparingly over the surface, no trace of any midden or refuse heap was seen.

The smaller mound, on the other hand, was completely covered with shells, teeth, and bones, and in excavating, considerable masses of midden were disclosed. Everywhere, also, the action of fire was apparent, and several of the cairns seemed to be the remains of small circular ovens or fire-places which had been used for roasting the animals whose bones lay around them.

The only instance of complete structure disclosed was at the top of the small mound, as shown by the accompanying sketch, plan, and section E.

A very massive stone closed the entrance on the east side next the sea. From this a passage, enclosed on each side by upright flag-stones, about two feet long by one and a half deep, descended by a gentle decline for six feet. It then became horizontal for about eight feet, widening out from three to five feet, and taking a turn from nearly north-west to west, in which direction a similar ascending passage emerged on the west side of the mound. Between the upright flags were placed, in several instances, oblong stones about three feet high, similar to the memorial stones of the kists. The stones were all unhewn, and must have been brought from the beach from a distance of at

least two miles. They were built with some care, stones being placed in some cases to fill interstices and break joint. There was no trace of a roof, but the pavement was carefully fitted.

Refuse of shells, bones, animal matter, and charcoal, had accumulated on this floor to the depth of about nine inches, and when the pavement was taken up it showed a few inches of similar refuse below on which the flags had been laid.

The refuse matter and pavement all showed signs of fire, which became more intense in the central chamber where the bones were all charred and many of the stones split by heat.

The west end of the passage was not closed, but was partially ruined, and outside it was a considerable midden of the usual shells and bones.

The relics found were:—1. In the lower midden, two small whorls of stone and one of bone; the latter is worth noticing. It is made of the ball of a femur, and from its lightness and hemispherical form seems to negative the idea that it could ever have been used for the purpose of spinning. Some pieces of flint which have been artificially chipped. A broken sandstone block six inches by four, which has exactly resembled a ship's block, having a deep groove running round it with a notch at one end for the purpose of attachment. I have seen a stone exactly similar, though smaller, in the collection of Mr. George Petrie, which was found at Grain, near Kirkwall, in Orkney, in cutting a road near the site of a ruined Pict's house. A stone hammer or oval beach stone, showing signs of pounding at the end.

2. In the upper strata of the outside midden were found the bone skewer and particularly well-fashioned bone pin now produced. Above these, in the clean sand about two feet below the surface of the mound, was found the large iron nail, much corroded, and some small fragments of rusted iron now produced. On the surface of the mound were found, amidst the numerous shells and bones and ordinary beach stones, some flint pebbles and splinters of flint, two small pieces of chalk much weatherworn, part of a belemnite, bits of rock crystal, and large iron pyrites, one or two rusty nails, apparently recent, one of them sticking in a piece of wood; some fragments of light vegetable matter, probably highly dried peat, and a large lump, not waterworn, of black magnetic iron ore, with one or two small pieces of the same slightly fused.

There were, however, no extensive deposits of slag or trace of iron furnaces; and what is singular, considering the extent and varied nature of the *débris* exposed and turned over, not a trace was found of pottery. In fact the small proportion of relics found in these as compared with the other mounds leads to the supposition that they may not have been regular dwellings, but rather places of worship or sacrifice, when the neighbouring tribes met to regale themselves with rude banquets. Further excavations however, would be necessary to disclose the structure of these mounds, as to which, all that can be said with any certainty is that they are probably of the same period as the burial mound and the lower strata of the other mounds.

The remaining, or "Moorland," mound is of a different character, and falls rather within the class of Pre-historic dwellings described by the Rev. Mr. Joass in Mr. Roberts's paper. The dwelling explored, however, is not circular, but nearly square, with an entrance passage as shown by the subjoined sketch and plan *r*.

The walls are made of large flags set on edge, there was no trace of any roof, but the floor was paved with flat stones, over which were a few inches to a foot of shells, bones, and ashes. The shells were principally periwinkles, though the distance from the shore was about three miles, and there were several large fish bones. The other bones were principally of deer, pigs, and birds. Along the wall on each side of the principal room was a row of square boulder stones, forming a bench or bed. The inner end was divided by two large upright flagstones into three compartments. The fire-place had been on the stone floor near the passage or doorway.

The relics found on clearing out the floor of this dwelling were,

Some fragments of pottery, apparently wheel made, and newer than that of the other mounds, one of the pieces having a coarse blue glaze.

A sandstone hammer or oval beach stone, used at the end.

Two small stone whorls.

Several smooth round pebbles from the beach, which I take to be sling stones.

A piece of porphyry polished on one side.

From the nature of the pottery, I do not consider this dwelling or cluster of dwellings in the middle of the moor, as of the same antiquity as the mounds near the shore.

Having now completed the description of the different mounds, I proceed to state the leading results which I think may be taken as established.

1. The burial mound, with its kists and skeletons, is unquestionably of the early stone period. It is impossible to imagine that a people who had any knowledge of metals, or who were even acquainted with the well-fashioned celts, arrow heads, and other implements of a later stone period, could have placed such excessively rude weapons in the kist of a chief on whose sepulture so much pains and labour had been expended.

In using the term "the early stone period," I by no means wish to settle the question of great positive antiquity. There is nothing in the fashion of the weapons to indicate any advance beyond the Abbeville period, when man was contemporary with the mammoth and rhinoceros; but it by no means follows that a relic of the aboriginal population may not have lingered on in this remote corner of Britain, without progress or improvement, down to a comparatively recent period, when they were extirpated by the historical races who were acquainted with metals. It is even probable that this may have been the case from the fact that the mounds are posterior to the last raised beach. This, however, does not affect the interest of the fact that we have here an undisturbed series of the graves and skeletons of the aboriginal race of North Britain, which is either itself of great antiquity, or represents a race who had lived on little changed from the earliest period of the occupation of the country.

2. The other mounds and shell-middens, with the exception probably of the Moorland Mound, are of the same race and period, although they have been subsequently occupied by later and more advanced people. This is proved not only by the general evidence of contiguity and resemblance, but also by the specific identity of the kists of the Burial Mound with those of the Links Mounds, and of several of the stone implements of the Burial Mound with those of the Harbour and other mounds, as well as by the character of extreme and primitive rudeness which attaches alike to the stone weapons of the kists and to the whole series, without a single exception, of stone and bone implements and pottery from the lower strata of the middens.

3. The type of the race is very remote from that of any modern European race, and accords with what might be expected from the rudeness of their implements.

Professor Huxley, to whom I first mentioned these discoveries when he was in Caithness as one of the Fishery Commissioners, has kindly undertaken to make a thorough examination of the skulls and skeletons, which will doubtless be of great interest to the scientific world. In the meantime, I content myself with producing the skulls for inspection, and making a few general remarks.

The number of skulls from the same cemetery is sufficient to exclude the chance of accidental variety, and give a fair idea of the type.

Eight kists in all, containing human remains, were opened at the Burial Mound, and one at the Links Mound. In one of these, No. 6, a few fragments of skull only remained, with the lower jaw of a dog. In the kist of the Links Mound the skull was missing, but the lower jaw and most of the skeleton remained, shewing that they had belonged to a very aged male of the same type as the others, and about five feet two inches in height.

In kist No. 4, the frontal bone and part of the upper and lower jaw only remained, shewing the same type with extreme prognathism.

In the remaining kists, Nos. 1, 2, 3, 5, 7, and 8, the skulls were entire, or nearly so, and are now on the table; and I obtained also the entire skeleton of No. 1, and portions of those of Nos. 2, 7, and 8.

No. 8, the chief, was a male, and of very massive proportions.

No. 7, who lay next the chief, was also a tall man.

No. 1 was a female and No. 2 an adult male, not above five feet to five feet two inches in height, which was also the height of Nos. 3 and 5, and, probably from the length of the kists of Nos. 4 and 6, I believe they were all adult males.

We have therefore a considerable series from which to infer the type. It is decidedly dolichocephalic, the length ranging from seven to eight inches, while the *maximum* width ranges from five and a quarter to six inches, the proportion of width to length being from seventy to seventy-eight to one hundred inches. The *minimum* frontal diameter is not above three and a half to four inches, and the height above the glabella-occipital line from three and three-quarters to four and a quarter inches. The arc from the occipital protuberance to the

root of the nose is eleven to twelve inches, and the horizontal periphery nineteen to twenty-one inches.

There is considerable variety in the series, skull No. 7 being a very fair one, with little prognathism, and not inferior to many ancient British skulls, while in No. 1 the low attributes of the type are carried to such an extent as to give it a decidedly Negro aspect, and make it, in the opinion of some high scientific authorities who have examined it, the worst European skull they have seen, with the exception of that of Neanderthal. The prognathism is extreme; the forehead is singularly low and narrow; the skull so depressed, that the height above the glabella-occipital line is scarcely more than half the length of that line; and the brain so deficient that, instead of filling out the skull to a well-rounded arch, the sides meet almost like the flat roofs of a pent-house, forming a protuberant ridge at their junction.

No. 3 is a skull of better frontal development, and not very marked prognathism. The other skulls approximate more to No. 1 than to No. 7.

Nos. 2 and 4 have been almost, if not quite, as prognathous; and Nos. 5 and 8 show very marked prognathism. They have also all very small frontal development, unusually low proportion of height to length, and the same tendency to flatness in the walls of the skull, with a protuberance along the ridge of the median suture. The teeth, which are of moderate size, are all much worn, as if by the attrition of uncooked food mixed with sand. The nasal bones are prominent, the lower part of the face narrow, the chins small, but not receding.

In these and other respects they differ from the Negro type, which is conspicuous in other parts of the cranium; and all that is meant in referring to it is, not that those primitive men were genuine Negroes, but that these skulls show, in several instances, a marked deviation from the river-bed type in that direction, which is the more remarkable as the primitive skulls of the Danish middens differ in a diametrically opposite direction, and are decidedly Turanian and brachycephalic.

From the type of the race I pass to a few conclusions which may be drawn respecting their habits and mode of existence.

FAUNA :—

By the kind aid of Mr. Roberts and Mr. Carter Blake, who have been assisted in their identifications by Mr. Davies of the British Museum, I am enabled to give the following complete list of the animal remains of the Keiss middens. We are indebted to Professor Owen for the important identification of the *Alca impennis* or Great Auk.

MOLLUSCA :—Limpet (*Patella vulgata*); periwinkle (*Littorina litorea*); lesser periwinkle (*Littorina neritoides*); whelk (*Buccinum undatum*); cockle (*Cardium*); scallop (*Pecten majus*); lesser scallop (*Pecten argus*).

ANNULOSA :—Lobster; Serpula.

FISH :—Cod (*Morrhua vulgaris*).

MAMMALIA :—Ox (*Bos longifrons*); horse (*Equus caballus* (?) fossilis); red deer (*Cervus elaphus*); goat (*Capra hircus*); hog (*Sus*

scrofa); dog (*Canis familiaris* or *familiaris fossilis*); fox (*Canis vulpes*); rabbit (*Lepus cuniculus*), perhaps recent; water rat (*Hypudæus amphibius*), the same; grampus (*Delphinus orca*), or small whale; dolphin (*Delphinus delphis*), or some other small cetacean.

BIRDS: Great auk (*Alca impennis*); lesser auk (*Alca torda*); cormorant (*Phalacrocorax carbo*); shag (*Phalacrocorax graculus*); solan goose (*Sula bassana*).

The most interesting fact is the discovery of the "*Alca impennis*," which is now extinct in Europe, having but lately died out in Ireland, but said to survive in Greenland. Its bones are frequent in the Danish kjökkenmöddings, where they have been thought to imply great antiquity and a more glacial climate, but it is believed that they have never been found in any tumuli or deposits of a later date than these primæval middens. Hence their discovery in the Caithness middens affords an important link of connection with those of Denmark, and strengthens the evidence of high antiquity drawn from the rudeness of the implements and low type of the skulls.

The fauna also corresponds with that of the Danish middens in its general characters, and contains just such an assemblage of animals as are commonly found in quaternary deposits. The dog is the only one of which we may assume with some certainty that it was in the domestic state.* The ox was the *Bos longifrons*; the hog probably wild, from the size of the tusks; the horse, a large-headed animal of small size, but considerably larger than the Shetland pony, corresponding perfectly with the *Equus fossilis*, and probably wild, as it had been commonly used for food; the goat precisely similar to the fossil goat from the newer pliocene figured by Owen in his *British Fossil Mammalia*.

The absence of the sheep, should it be confirmed, would strengthen the inference against domesticated animals; and the horns of the red deer confirm the supposition of considerable antiquity, some of them being of unusually large size and very abnormal. It will be recollected that in the earliest lake dwellings of the age of stone in Switzerland the goats outnumbered the sheep, but towards the close of the same period the sheep were more abundant than the goats. The presence of goats without sheep, therefore, in the Caithness middens, would point to a connection rather with the antecedent Danish middens than with the earliest relics of the stone period in Switzerland, agreeing completely with the similar evidence derived from the presence of the *Alca impennis* and the excessive rudeness of the stone and bone implements.

Food.—This was evidently composed principally of shell-fish from the adjoining shore, consisting in nine cases out of ten of periwinkles and limpets. Fish and whales were also eaten, but the latter were

* I found this conjecture mainly on the jaw found in one of the kists, apparently of the hunter's faithful dog to bear him company; but the size corresponds either to that of a large shepherd's dog, or of the fossil dog of the quaternary period; and if dogs were domesticated, it is singular that so few remains should be found, and no trace of the gnawing of other bones, which is so common in the Danish middens.

probably stranded. Even as regards fish, the total absence of anything like fish hooks or tackle, and the very small proportion of fish bones on a coast abounding with fish, suggests a doubt whether they did more than pick up dead fish which are very frequently cast up on this shore.

I never heard of canoes, which are so common further south, being found in any of the peat mosses or lake marls of Caithness or Orkney, and although the country was doubtless once covered with a scrubby underwood, I question if trees of sufficient magnitude to form canoes ever existed in sufficient number near the sea-shore or navigable rivers to teach the savages the art of boat-building. Be this as it may, the fact is worth noticing that in these refuse heaps on the shore of a sea abounding in fish, there are far fewer bones of fish than of *Bos longifrons*, and no traces of any fishing or boating tackle.

The fauna enumerated all afforded food, the whole of the remains having been found in the middens, and in many cases showing the action of fire. The two instances of human jaws found in the middens afford a strong presumption that cannibalism was occasionally resorted to. Shell fish only being placed in the kists as food for the dead, strengthens the presumption that they were the staple and ordinary article of food.

Did grain form any part of their food? Upon this point there is no sufficient evidence. In two cases large stones were found, nearly circular, in which holes had been bored on opposite sides to a certain depth, as if an attempt had been made to bore a central hole which had been abandoned. These may have been intended for quern stones, and if so, grain was probably used. But there is no proof that these were quern stones; on the contrary, they seem unsuited for such a purpose from want of density and hardness, and one at least of these stones showed traces of the action of fire and was covered with greasy black ashes and decomposed animal matter. It has occurred to me that these stones may have been used for obtaining fire by friction.

A large stone block was found with a space excavated in it, which, if circular, would have done for a quern, but it was oblong and apparently intended as a mortar in which to pound with the oval sandstone beach stones used as hammers.

Grain may have been so pounded, but it is equally possible that bones may have been thus reduced to the small splinters in which they are generally found, for the sake of extracting the marrow. I looked carefully among the ashes and débris for any trace of grain or vegetable substance, but could never find anything but small pieces of wood charcoal, and for the present all that can be said is that there is no proof of the use of grain, and perhaps some slight presumption against it from the absence of unmistakeable querns which are so common in connection with later buildings.

The attrition of the teeth may possibly afford an argument; but I apprehend that this might equally result from gnawing bones and eating large quantities of shell-fish mixed with sand.

Interment.—The mode of burial has evidently been the simplest

and most natural—viz., that of laying the body in its extended position on the surface of the ground, enclosing it in a rude kist of stones from the beach, and covering it with a small grave-mound, or a long and low heap of stones and sand. This mode of sepulture has commonly been considered that of the later Anglo-Saxon age after the Pagan custom of cremation had been abandoned; but it is so simple and obvious that it does not, like more artificial rites, afford any inference of a particular period.

At any rate, the fact is certain that in this instance and in many others in Orkney, to which I could refer, the simplest mode of interment is the oldest, and the association of the rudest stone weapons with human remains of the lowest type, is found in what Wilson, in his *Prehistoric Scotland*, calls the “Long Barrow,” or simple grave-mound covering an extended kist.

Rude as they were, these aborigines had ideas of a future existence, as shown by the burial of weapons and food with the deceased.

Intercourse with other Countries.—It may fairly be inferred from the nature of the weapons and implements that these aborigines were isolated from the rest of the world. The tools and weapons are in all cases made of the stone belonging to the district, though for most purposes it is very inferior. The value of flint was evidently known, but the only flints available were those small waterworn pebbles, the relics of some chalk formation to the eastward which has disappeared, which are not uncommon on the sea shore and old raised beaches of Caithness.

In a more advanced stone period the instances are innumerable where weapons of flint, porphyry, greenstone, etc., in districts destitute of these materials, testify to some degree of intercourse with neighbours. But in the present instance the total absence of any foreign material, and the use of the native substance for weapons and cutting tools, for which flint would unquestionably have been used if it could have been obtained of sufficient size, lead to an opposite inference.

Arts and Architecture.—The former were evidently at the lowest point consistent with human existence. The weapons and tools show little in advance on the ingenuity of the Gorilla, who uses a thick stick as a club, or a large pebble from the river bed to crack a cocoa nut. It is specially remarkable that the arrow heads have no trace of a barb, and the spear heads, celts, or hammers, no holes or grooves to facilitate attachment to a shaft or handle. Many of them, including the chief's battle-axe, seem to have been simply held in the hand. It also deserves notice that there is no trace of ornament in any of the stone or bone implements or fragments of pottery. The only trace of more advanced art is in the whirls which may be thought to indicate spinning.

On the other hand, if it be established, as I think is probable, from the section of the Harbour Mound, that the older portions of the burghs or circular towers are connected with this primitive race, their architecture was by no means contemptible. This would be only an illustration of the truth that the civilisation of a secluded and primitive race de-

pendes very much on the materials which nature surrounds them with. The tools and weapons of the Caithness aborigines were miserable because nature gave them no large flints or hard cutting stones, while on the other hand, she supplied them with a profusion of flags and blocks from the fissile strata of the old red sandstone, squared almost as regularly as by the chisel of the mason. With such means at hand, it must be admitted that a circular tower afforded the readiest means of combining defence against enemies with shelter from the elements, and the construction of a second concentric circular wall, with a narrow interspace which could be divided into chambers and roofed over with flags was a natural development of the original idea.

There is much evidence in the adjoining county of Orkney that these burgs are in some cases of great antiquity. I may mention that of Savrough near Birsá, where the ruins of a burg had been converted into a green mound like this of Keiss, in which graves had subsequently been made of the bronze period, as shown by the urns containing burnt bones and other relics found in the kists.

I see no difficulty, therefore, in carrying back the origin of the burgs to the earliest stone period, although they may have been occasionally occupied, as there is historical evidence of occupation in the case of the burg at Monsa in Shetland, as late as by the Scandinavians of the ninth and tenth centuries. It is a material fact, that however regular the architecture may appear, in no single instance is there a trace of a tool on any stone used in any of the kists or buildings. They have been without exception squared by Nature's hand, and hundreds of blocks and flags, as regular in form, could now be picked up on the adjoining beach.

Lastly.—I submit this conclusion, that although it would be rash to draw positive inferences without a wider range of facts, there is strong presumption that a careful examination of the shell middens and early graves and buildings of the North of Scotland will establish the same classification as in Denmark, of an early and later stone period, succeeded by periods of bronze and iron, though it will show that the aboriginal race was of a different type and probably came, as the rigour of the glacial period abated, from the south, with the hippopotamus and elephant, rather than from the north with the musk ox and reindeer.

The thanks of the Society having been given to the author of the paper,

Professor OWEN said: No one can be better aware, Mr. President, than yourself, that I am here simply as a visitor; and one who has come to gather and learn important details of this exemplary investigation of ancient remains which we have had the pleasure of listening to this evening. I cannot but regard Mr. Laing's paper as likely to be a guiding type and pattern of the way in which certain ancient evidences of our race ought to be investigated and dealt with. It is most fortunate for anthropology that these ancient burying-places should have had for their first investigator a man with so

philosophical a mind and so good a judgment—one who could draw his inferences so carefully, and who was so alive and awake to all those circumstances that might lead the observer astray, as the distinguished author of the paper we have just heard. I have not in the whole course of my studies heard anything that has taught me so much in reference to the ancient relics of interments in Caithness as what I have heard this evening. It has repaid me most amply for availing myself of the opportunity afforded me by your president of listening to the paper. All I knew beforehand of the rich treat we anticipated this evening, was from the circumstance of some of these remains—the remains of the lower animals—having been brought last week to the British Museum for determination. Our experienced attendant, Mr. Davies, who, in reference to all the evidences of more recent remains, can determine with great accuracy, went through that labour with Mr. Carter Blake, your assistant-secretary. He found skeletons and parts of birds in the museum to match most of the bird-bones, but he brought me a few specimens, of which there were no examples in our cases. Most luckily, some time ago my friend, Mr. Alfred Newton, committed to my care the mummy of the *Alca impennis*, which had been discovered in a heap somewhat analogous to a guano heap on the coast of a small island off Newfoundland. It had got into the hands of the Bishop there, who transmitted it to his friend, who conveyed it to me, and we obtained an almost perfect skeleton of the species, which Mr. Gould and some other ornithologists consider to be not only extinct in Great Britain, but to have utterly passed away for some thirty or forty years. To my great delight, I found that these residuary bones were several parts of the *Alca impennis*, and they are the first direct evidences of specimens of the bird taken on our northern coast, on which my friend, Mr. Gould, in his admirable work on British birds, may introduce the *Alca impennis* as a genuine old British bird. With regard to the characters of the human crania, I was not aware that Mr. Laing had referred them to an accomplished and assiduous fellow labourer, from whom we shall obtain all the requisite anatomical observations respecting them. Looking at them for the first time to-day, I must observe that singular as are the superficial resemblances to the Ethiopian skull in the small female, there are three or four characters that enable the anatomist at once to see that it is not an Ethiopian. The teeth are small; then there is the extent to which the alisphenoid joins the parietal; there is also wanting a character that always strikes my eye in reference to crania of the genuine Negro—a certain bulging out of the middle part of the frontal bone; a feature that is very rarely seen in prognathic northern skulls. Finally, the nasal bones are prominent, indicating rather a good contour of that feature of the face. On the whole, it seems to me to indicate a type combining the greater beauty we find in the Grecian with a certain delicacy of feature we find in the Hindoo, showing that that old primitive orient race may have been the source of this race—that these oldest Caithness people and ancient Egyptians came from the south rather than from the north. That was the conclusion passing through my mind in re-

ference to that skull. It would be unbecoming in me to offer many observations. I will, however, conclude my remarks by referring to a point which can hardly be considered an ethnographical or cranio-logical question. I am looking at that little child's lower jaw. It is not a light matter to bring the charge of cannibalism against our old northern progenitors, however far back they may date. One would not willingly infer that they combined occasionally with their limpets and fish, the delicate animal food of a tender well-fed child of five years old, the age at which the dentition of this jaw clearly shows the poor little creature to have been. But yet I am compelled to admit that if I had been called upon to give professional evidence on such a case before a judge and jury, I should have first looked at the lower margin of the jaw. I have had experience of the way in which jaws of mammalia that have been used for food have been dealt with by the old primitive flesh-eaters of a period perhaps as remote as the oldest of these; and I find that when they came to the lower jaw, after picking off the flesh in a general way, as indicated by the marks on the superficies, by chipping the lower margin of the jaw, they proceeded to lay open the dental canal, which contains something nearly analogous to that which they never failed to get out of the marrow bones. Now, there are clear indications that this has been practised with this child's lower jaw. The whole of the dental canal in which runs a substance analogous to marrow has been laid open, and I cannot help suspecting that this substance has been sucked out, and agree therefore, with Mr. Laing, in thinking that that dear little old young creature has not come fairly by its end, and that this jaw really belongs to the same category with regard to its use and purpose with the other multifarious animal remains, the refuse of the meals of the old Caithness meals. I again thank most cordially my friend Mr. Laing—an old fellow labourer, for I am indebted to him for some interesting fossil remains from his former neighbourhood in Hampshire—for his valuable paper. I did not expect that so soon after his return from graver duties, I should again have to thank him for such a fine body of information on this most interesting subject, the study of which we are associated together to promote.

The following paper was then read:—

On the Discovery of Large Kistvaens in the Mücke Heog, in the Island of Unst, Shetland, containing Urns of Chloritic Schist, by GEORGE E. ROBERTS, Esq., F.G.S., Hon. Sec. A.S.L. *With Notes upon the Human Remains* by C. CARTER BLAKE, F.G.S.

[This paper is published in the first volume of *Memoirs*.]

The thanks of the Society were voted to Mr. Roberts and also to Mr. Blake, and the discussion being invited on the two papers,

Professor OWEN: With regard to the smallest skull—that of the female—from Shetland, I do not remember to have seen one that presented so strong a resemblance, especially in the fore part of the skull, to the cranial characters which we find in the Australian race, both with regard to its prognathism and to the very strongly-